

What is claimed is:

1. A vacuum packaging film, comprising:

a base layer; and

5 a thermoforming layer laminated on the base layer and having protuberances on an inner surface of the thermoforming layer to form air passages, wherein the protuberances have first group of protuberances, and second group of protuberances having a height higher than that of the first group of protuberances.

10 2. The vacuum packaging film as defined in claim 1, wherein the first group of protuberances and the second group of protuberances have different arrangements arranged at different angles, to clearly show a pattern formed on the inner surface of the thermoforming layer.

15 3. The vacuum packaging film as defined in claim 2, wherein the first group of protuberances and the second group of protuberances have various sizes.

20 4. The vacuum packaging film as defined in claim 2, wherein the first group of protuberances and the second group of protuberances have different shapes.

5. The vacuum packaging film as defined in claim 2, wherein the patterns comprise a fruit shape.

6. The vacuum packaging film as defined in claim 2, wherein the patterns
comprise an animal shape.

7. The vacuum packaging film as defined in claim 2, wherein the patterns
5 comprise a character shape.

8. The vacuum packaging film as defined in claim 2, wherein the patterns
comprise a plant shape.

9. The vacuum packaging film as defined in claim 2, wherein the patterns
10 comprise a diagram shape.

10. The vacuum packaging film as defined in claim 1, wherein the first
group of protuberances each are 0.8-1.5 times thicker than a thickness of the
15 thermoforming layer.

11. The vacuum packaging film as defined in claim 1, wherein the second
group of protuberances each are 1.0-2.0 times thicker than a thickness of the
thermoforming layer.

12. The vacuum packaging film as defined in claim 1, further comprising
20 an adhesive layer between the base layer and the thermoforming layer.

13. The vacuum packaging film as defined in claim 1, wherein the base
25 layer comprises polyamide, polyester, or ethylene vinyl alcohol.

14. The vacuum packaging film as defined in claim 13, wherein the base layer comprises a multi-layered structure including at least one layer.

5 15. The vacuum packaging film as defined in claim 1, wherein the thermoforming layer comprises polyethylene.

16. The vacuum packaging film as defined in claim 1, wherein a surface of the thermoforming layer comprises a flat part which is not embossed, first group of protuberances, and second group of protuberances.
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17. The vacuum packaging film as defined in claim 1, wherein a surface of the thermoforming layer comprises first group of protuberances and second group of protuberances.
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18. The vacuum packaging film as defined in claim 1, wherein the protuberances further comprise third group of protuberances having a height higher than that of the second group of protuberances.

20 19. The vacuum packaging film as defined in claim 18, wherein the protuberances further comprise fourth group of protuberances having a height higher than that of the third group of protuberances.

20. The vacuum packaging film as defined in claim 18, wherein the first group of protuberances, the second group of protuberances and the third group of
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protuberances have different arrangements arranged at different angles, to clearly show a pattern formed on the inner surface of the thermoforming layer.

21. The vacuum packaging film as defined in claim 18, wherein the first
5 group of protuberances, the second group of protuberances and the third group of protuberances have various sizes.

22. The vacuum packaging film as defined in claim 18, wherein the first
10 group of protuberances, the second group of protuberances and the third group of protuberances have different shapes.

23. The vacuum packaging film as defined in claim 19, wherein the first
group of protuberances, the second group of protuberances, the third group of
protuberances and the fourth group of protuberances have different arrangements
15 arranged at different angles, to clearly show a pattern formed on the inner surface
of the thermoforming layer.

24. The vacuum packaging film as defined in claim 19, wherein the first
group of protuberances, the second group of protuberances, the third group of
20 protuberances and the fourth group of protuberances have various sizes.

25. The vacuum packaging film as defined in claim 19, wherein the first
group of protuberances, the second group of protuberances, the third group of
protuberances and the fourth group of protuberances have different shapes

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26. The thermoforming film as defined in any one of claims 2, 20 and 23, wherein a layer printed with a pattern identical to that formed on the inner surface of the thermoforming layer is transcribed to an outer surface of the thermoforming layer.

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27. A vacuum packaging bag, comprising an upper sheet and a lower sheet superimposed mutually, in which lower edges and both side edges of the upper sheet and the lower sheet are sealed to form an inner chamber of the vacuum packaging bag, and upper edges of the upper sheet and the lower sheet are open to

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form an open part to receive contents into the vacuum packaging bag, wherein at least one of the upper sheet and the lower sheet comprises the vacuum packaging film according to any one of claims 1 to 26.

28. A method of manufacturing a vacuum packaging film, comprising the following steps of:

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melt-extruding a thermoforming layer on a base layer made of an air-impermeable material through a nozzle of a T-die extruder, to prepare a film and passing the film through a layering unit with a embossed roll having embossments and a cooling roll,

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wherein the embossed roll of the layering unit has first group of embossments and second group of embossments, and thus the thermoforming layer has first group of protuberances and second group of protuberances on an inner surface thereof, corresponding to each position of the first group of embossments and the second group of embossments of the embossed roll, to form air passages.

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29. A method of manufacturing a vacuum packaging film, comprising the following steps of:

passing a thermoforming layer through a protuberance-forming unit with a embossed roll having embossments and a flat roll, to form protuberances on an inner surface of the thermoforming layer and

passing a base layer made of an air-impermeable material and the thermoforming layer with the protuberances through a layering unit with two layering rolls,

wherein the embossed roll of the protuberance-forming unit has first group of embossments and second group of embossments, whereby the thermoforming layer passed through the protuberance-forming unit has first group of protuberances and second group of protuberances on an inner surface thereof, corresponding to each position of the first group of embossments and the second group of embossments of the embossed roll, to form air passages.

30. The method as defined in claim 28 or 29, wherein the first group of embossments and the second group of embossments of the embossed roll have different arrangements arranged at different angles, to clearly show a pattern formed on the inner surface of the thermoforming layer.

31. The method as defined in claim 28 or 29, wherein the first group of embossments and the second group of embossments of the embossed roll have various sizes.

32. The method as defined in claim 28 or 29, wherein the first group of embossments and the second group of embossments of the embossed roll have different shapes.

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